



## Fire Weather Observations for the Fire Program Analysis System

Date: December 6, 2004

Quality Control and Quality Assurance of the data by Desert Research Institute

The Fire Program Analysis System – Preparedness Module (FPA-PM) utilizes a Fire Event Scenario to represent the initial response workload within a Fire Planning Unit (FPU). A FPU consists of one or more Fire Management Units (FMU) that describes the geographical extent for the area being analyzed.

Each Fire Event Scenario consists of a set of initial response fire events each having specific attributes that describe the event. Two of these fire event attributes are outputs of fire behavior calculations, rate of spread and fire intensity level. The fire behavior calculation is dependant upon a fire weather observation as one of its inputs. The fire weather observation is provided based upon a list of user defined representative weather stations for each FPU. These weather observations consist of both hourly and daily data. Review of these observations that have been archived in the National Interagency Fire Management Integrated Database (NIFMID) for each weather station demonstrates that several stations are missing data. Closer review of these weather observations indicate that some of the existing data may be outside the range of conditions that existed in that area at that time. Examples are wind speeds recorded for a station in excess of 80 miles per hour when all neighboring stations wind speeds for the same time period did not exceed 20 miles per hour.

These data when used without a Quality Control or Assurance process applied to them will lead to non representative fire behavior calculations for the Fire Planning Unit they are to represent. The Desert Research Institute (DRI), Dr. Tim Brown and his associate Beth Hall have agreed to apply their Quality Control and Quality Assurance process to the user defined Fire Planning Unit representative weather stations.

DRI's process will be applied to data that was either;

- a. Missing originally
- b. Physically impossible (e.g. negative humidity, wind speed, wind direction, etc.)
- c. Highly unlikely (e.g. temperatures > 150, wind speed > 200, etc.)
- d. Unchanged for too long (temperature the same value for 24 hours, wind speed the same for 24 hours, etc.)

The above data will be estimated through DRI's statistical routines.

It is very likely that extended gaps of missing or replaced data will have to remain missing due to the statistical algorithms essentially being unable to create an observation.

DRI will provide three files per weather station, one will be a daily fire weather observation and the second file will consist of hourly observations per station and the third file will be a comma delimited file that provides information on which values were the original observations and which were estimated. These data will be in the WXOBS98 format as defined on the website [famweb.nwcg.gov](http://famweb.nwcg.gov).

Once DRI has applied their QC/QA process to a station they will post the weather stations' files per FPU on a ftp site for the FPU Team Leader to download. The DRI will notify by email Sue Weber (FPA-ICG), Howard Roose (FPA-Core Team), and Paul Schlobohm (Fire Environment Working Team) once a FPU's data files are available for download. DRI will also mail a CD or DVD's of the data to Howard Roose of the FPA project. FPA will notify each FPU Team Leader to advise them of their weather stations data availability for download, the FPU Team Leader will in turn notify FPA once they have downloaded their data.

These weather station data do not replace a GRID process that Dr. Scott Goodrick is developing for FPA. DRI WILL NOT Overwrite existing quality data that users have worked hard to get archived in NIFMID.

Plans as to where these data should be archived will be discussed at the NWCG, Fire Danger Working Team meeting to be held February, 2005.

For questions regarding this process please email Howard Roose at [hroose@blm.gov](mailto:hroose@blm.gov)